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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,616	06/09/2006	Zee Upton	FAK8011	2998

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TAROLLI, SUNDHEIM, COVELL & TUMMINO L.L.P.
1300 EAST NINTH STREET, SUITE 1700
CLEVEVLAND, OH 44114

EXAMINER	
SGAGIAS, MAGDALENE K	
ART UNIT	PAPER NUMBER
1632	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/565,616	UPTON ET AL.	
	Examiner	Art Unit	
	MAGDALENE K. SGAGIAS	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 February 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28,35 and 36* is/are pending in the application.

4a) Of the above claim(s) *3,4,6,8-20,24-28,35 and 36* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5,7 and 21-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/24/06;3/21/08;1/8/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims **1-28, 35-36** are pending. The amendment has been entered. Claims **29-34** are canceled.

Applicant's election with traverse of group I and the species IGF-I, IGFB3 and an absence of serum in the reply filed on 2/13/09 is acknowledged. The traversal is on the ground(s) that Upton discloses a mammalian cell culture system comprising: (i) IGF-I and IGF-II; (ii) vitronectin; and an amount of serum for cell growth support. Claim 1 is directed to a cell culture medium comprising an absence or an amount of serum which in the absence of IGF-I or IGF-II would not support cell growth, whereas Upton is directed to a cell culture system comprising an amount of serum for cell growth support._Accordingly, Applicants respectively submit that the present invention is generic with respect to IGF-I and IGF-II, IGFBP3 and IGFBP5, and an absence of serum or an amount of serum which, in the absence of at least one IGF, would not support cell growth. Applicants respectively submit that IGF-I and IGF-II are both mitogenic peptide growth factors involved in cellular processes, while IGFBP3 and IGFBP5 are structural proteins that support the formation of a non-covalent protein complex between IGF-I and vitronectin. Accordingly, it would place no further burden on the Examiner to search and examine the present application with respect to IGF-II and IGFBP5. These Arguments are not persuasive because Upton embraces the structural components of the claimed composition by disclosing a mammalian cell culture system of human keratinocytes, wherein the medium is comprised of (i) IGF-I or IGF-II (p 38, claim 10); (ii) vitronectin (p 38, claim 8); (iii) does not teach presence or absence of serum and the culture medium further contains IGFBP3 (p 38, claim 23). Upton teaches the cultured keratinocytes can be used to augment or diminish binding between IGFs, IGFBPs and vitronectin in vitro with a view to manipulating contigent in vivo

biological events associated with cell growth, proliferation and migration may be suppressed for treating purposes. Regarding the arguments on burden on the Examiner to examine IGFBPs, IGF-I and IGF-II this is not found persuasive because restriction requirements are set forth for reasons of patentability distinction between each independent invention so as to warrant separate search and search burden. In the instant case, the different inventions represent different IGFBPs into the culture medium for support or lack of cell growth. For example, the IGFBP3 will activate different signal transduction pathways than IGFBP1 which will have different effects on cell proliferation, cell doubling and cell survival in culture which are patentably distinct, and would require separate search with different search terms and different search strategy in the art. With regard to group's I-XIV, this is not found persuasive because in the instant case the different inventions represent different method steps. For example, the method steps of group XIII for delivering keratinocytes grown in culture medium of comprising the growth factors of claim 1 cannot used for growing keratinocyte progenitor cells of group XIV. The examiner maintains that the inventions of groups XIII and XIV are distinct from each other because they have distinct and different method steps amongst each other. Thus, each method is unique and patentably distinct since the production of keratinocytes in a cell culture medium has distinct delivery method steps compared to method steps of delivering keratinocyte progenitor cells. The compositions of the groups I-XII are patentably distinct each from the methods of the group XIII-XIV because these methods cannot be used to produce the compositions. Alternatively, the composition may not be used in the methods or will be used in more than one method. Therefore, the inventions of the groups I-XIV are patentably distinct each from the other and will require separate and non-coextensive searches in the patent and non-patent literature. The examiner maintains that the inventions of groups I and VI and VII are

distinct from each other because they have distinct and different method steps amongst each other.

The requirement is still deemed proper and is therefore made FINAL.

Claims 3-4, 6, **8-20, 24-28, 35-36** are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Regarding claims 3-4 and 6 require serum in the culture medium and Applicants elected absence of serum in the reply filed on 2/13/09, thus said claims being drawn to a nonelected species. Applicant timely traversed the restriction (election) requirement in the reply filed on 11/14/08.

Claims **1-2, 5, 7, 21-23** are under consideration.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims **1-2, 5, 7, 21-23** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims embrace an enormous number of vitronectin fragments constituting a claimed genus s. The specification fails to disclose a representative number of the numerous vitronectin and/or fibronectin fragments in culture medium that would not be able to support cell

growth. The specification does not describe the structure or functional nature of the numerous vitronectin and/or fibronectin fragments. The specification is further silent on the specific characteristics, or structural motifs of any fibronectin and/or vitronectin, that may contribute to a culture medium for cell growth. The claims thus embrace a claimed genus that encompasses vitronectin and/or fibronectin fragments yet to be discovered.

As the specification fails to disclose any species of said fragments the Artisan of skill could not predict that Applicant possessed any species of said fragments.

To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail such that the Artisan can reasonably conclude that the inventor(s) had possession of the claimed invention. Such possession may be demonstrated by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and/or formulae that fully set forth the claimed invention. Possession may be shown by an actual reduction to practice, showing that the invention was "ready for patenting", or by describing distinguishing identifying characteristics sufficient to show that Applicant was in possession of the claimed invention (January 5, 2001 Fed. Reg., Vol. 66, No. 4, pp. 1099-11). Moreover, MPEP 2163 states:

> [A] biomolecule sequence described only by a functional characteristic, without any known or disclosed correlation between that function and the structure of the sequence, normally is not a sufficient identifying characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence.
>
> Applicant's attention is also directed to *In re Shokal*, 113 USPQ 283 (CCPA 1957), wherein it is stated:
> It appears to be well settled that a single species can rarely, if ever, afford sufficient support for a generic claim. *In re Soll*, 25 CCPA (Patents) 1309, 97 F2d 623, 38 USPQ 189; *In re Wahlforss*, 28 CCPA (Patents) 867, 117 F2d 270, 48 USPQ 397. The decisions do not however fix any definite number of species which will establish completion of a generic invention and it seems evident therefrom that such number will vary, depending on the circumstances of particular cases. Thus, in the case of small genus such as the halogens, consisting of four species, a reduction to practice of three, perhaps even two,

> might serve to complete the generic invention, while in the case of a genus comprising hundreds of species, a considerably larger number of reductions to practice would probably be necessary.

Overall, what these statements indicate is that the Applicant must provide adequate description of such core structure and function related to that core structure such that the Artisan of skill could determine the desired effect. Hence, the analysis above demonstrates that Applicant has not determined the core structure for full scope of the claimed genus.

In analyzing whether the written description requirement is met for genus claims, it is first determined whether a representative number of species have been described by their complete structure. Therefore, the breadth of the claims as reading on numerous vitronectin and fibronectin fragments yet to be discovered; in view of the level of knowledge or skill in the art at the time of the invention, an Artisan of skill would not recognize from the disclosure that Applicant was in possession of the genus of said fragment motifs. Thus it is concluded that the written description requirement is not satisfied for the claimed genus.

In conclusion, this limited information is not deemed sufficient to reasonably convey to one skilled in the art that Applicant is in possession of numerous vitronectin and/or fibronectin fragment motifs, at the time the application was filed. Thus it is concluded that the written description requirement is not satisfied for the claimed genus.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1-2, 5, 7, 21-23** are rejected under 35 U.S.C. 102(b) as being anticipated by **Upton et al** [WO 02/24219 (IDS)] as evidenced by **Upton et al** (Comparative Biochemistry and Physiology Part B, 121: 35-41, 1998).

Upton discloses a mammalian cell culture system of human keratinocytes, wherein the medium is comprised of (i) IGF-I (p 38, claim 10); (ii) vitronectin (p 38, claim 8); (iii) absence of serum **(claim 1-2, 5, 7).**

Upton teaches the culture medium further contains IGFBP3 (p 38, claim 23) **(claim 1-2, 5, 7).** Upton teaches the cultured keratinocytes can be used to augment or diminish binding between IGFs, IGFBPs and vitronectin in vitro with a view to manipulating contigent in vivo biological events associated with cell growth, proliferation and migration are suppressed such as for the purposes of treating cancers, psoriasis, atherosclerosis and wounds prone to hypertrophic scarring (abstract). Upton discloses the binding assays of IGF-I to vitronectin in the presence of recombinant IGFBP3 in the absence of serum (example 4, pages 28-29). Upton et al discloses the absence of serum as evidenced by the reference by incorporation in example 4, binding studies [see Upton et al (Comparative Biochemistry and Physiology Part B, 121: 35-41, 1998, page 37, 2nd column, under section, 2.3.2 IGF binding studies).

Upton discloses the culture of the keratinocytes on a culture vessel, following pre-binding of IGF-I to vitronectin in culture dishes, cells were seeded into the wells (pages 28-29) (**claims 21-23).**

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MAGDALENE K. SGAGIAS whose telephone number is (571)272-3305. The examiner can normally be reached on 8.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paras Peter can be reached on 571-272-4517. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Magdalene K. Sgagias, Ph.D.
Art Unit 1632

/Anne-Marie Falk/
Anne-Marie Falk, Ph.D.
Primary Examiner, Art Unit 1632